

**Figure S2. Hill-type muscle model used to define modeled muscles.** Each modeled muscle contains an active contractile element (CE; muscle fibers) operating in parallel with a passive elastic element (PE; e.g., connective tissue associated with muscle belly) and in series with a series elastic element (SEE; elastic components of tendon(s)). In static optimization simulations, muscle force ( $F_m$ ) is proportional to fiber length ( $L_f$ ) and activation, and tendon force ( $F_t$ ) is equal to  $F_m \cdot \cos\alpha$ , where  $\alpha$  is the average pennation angle of the muscle fibers. The length of the entire muscle-tendon unit ( $L_{mt}$ ) is the sum of the length of the tendon(s) ( $L_t$ ) and muscle belly ( $L_m$ ). Modified from (Charles et al., 2016; Zajac, 1989).

